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ALEXANDRIA, VA 22314

EXAMINER
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BAREFORD, KATHERINE A

ART UNIT	PAPER NUMBER
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1762

NOTIFICATION DATE	DELIVERY MODE
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07/24/2007

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	Application No. 10/528,117	Applicant(s) MARUMO ET AL.	
	Examiner Katherine A. Bareford	Art Unit 1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/05</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-14 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, the preamble requires an "electroless plating apparatus", however, the provided apparatus has no indication of any apparatus that actually performs electroless plating, thus it is confusing if an electroless plating apparatus is actually intended or required.

Claim 4, lines 2-3, "a processing solution" is unclear whether this is a new processing solution or the same processing solution as in parent claim 1. If it is the same processing solution, the phrase should read "the processing solution" for proper antecedent basis.

Claim 4, line 4, "thereof" is confusing as it could mean either adjusting the temperature of the processing solution or the plate.

Claim 5 requires that the solution supply unit supplies the processing solution "in turn." However, it is unclear what is required by "in turn". What occurs before or after solution supply to make it "in turn"?

Claim 6, line 3, "a processing solution" is unclear whether this is a new processing solution or the same processing solution as in parent claim 4. If it is the same processing solution, the phrase should read "the processing solution" for proper antecedent basis.

Claim 8, lines 2-3, "a liquid discharged" is unclear whether this is a new liquid or the same liquid discharged as in parent claim 7. If it is the same liquid, the phrase should read "the liquid discharged" for proper antecedent basis.

Claim 9, lines 2-3, "a processing solution" is unclear whether this is a new processing solution or the same processing solution as in parent claim 1. If it is the same processing solution, the phrase should read "the processing solution" for proper antecedent basis.

In claim 10, the preamble requires an "electroless plating method", however, the body of the claim has no requirement of electroless plating occurring, thus it is confusing if electroless plating is actually intended or required.

Claim 12, line 3, "a processing solution" is unclear whether this is a new processing solution or the same processing solution as in parent claim 10. If it is the same processing solution, the phrase should read "the processing solution" for proper antecedent basis.

The other dependent claims do not cure the defects of the claims from which they depend.

*Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 4-6, 9, 10, <sup>12</sup>~~11~~<sub>1</sub> and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Dubin et al (US 2003/0134047).

Dubin teaches an electroless plating apparatus. Figures 1-2 and paragraph [0001]. A substrate supporting unit for supporting a substrate is provided. Paragraph [0014] (chuck 3) and figures 1-2. A plate disposed to face the substrate supported by the substrate supporting unit is provided. Figures 1-2 and paragraphs [0015] (cover 7 would be a "plate" as shown) and [0018] (sprayer 16 in the form of a "showerhead" would also have a "plate" form). A processing solution discharge unit, formed on a surface of the plate which faces the substrate for discharging a processing solution is provided. Figures 1-2 and paragraphs [0015] and [0018] (either the sprayer 16 is formed on the surface of the cover 7 - see the attachment in the figures, or the discharge holes of the "showerhead" of 16 would also act as the discharge unit). A gap adjusting unit is

provided for changing a gap between the plate and the substrate. See for example, figure 2 and paragraph [0023] (note the adjustment of the position of cover 7, and the resulting movement of the attached sprayer 16 as shown in the figures).

Claim 2: heating units are provided that would provide for heating of the plate. Figures 1-2 and paragraph [0016] (the heating of the liquid passing through the sprayer would heat the "plate" of the sprayer 16 or connected cover 7).

Claim 4: a solution supply unit for supplying processing solution to the plate after adjusting the temperature of the processing solution is provided. Figures 1-2 and paragraph [0019] (see supply line 30).

Claim 5: the solution supply unit supplies the processing solution in turn, as it occurs after the step of providing the substrate on the supporting unit. See paragraphs [0019], [0026] and [0030] – [0031].

Claim 6: the solution supply mechanism has a processing solution producing unit for producing a processing solution by mixing plural chemicals. Figures 1-2 and paragraph [0019] (mixing chamber 23).

Claim 9: an operational nozzle for discharging a processing solution onto the substrate is provided. Figures 1-2 and paragraph [0018] (sprayer 16).

Claim 10: an electroless plating method is also provided. Figures 1-2 and paragraph [0001]. A supporting step for supporting a substrate is provided. Figures 1-2 and paragraph [0026]. A disposing step for disposing a plate to face the substrate supported at the supporting step is provided. Figure 2 and paragraphs [0023], [0026]

(cover 7 would be a "plate" as shown) and [0018] (sprayer 16 in the form of a "showerhead" would also have a "plate" form). A coating forming step for forming a coating on the substrate by supplying a processing solution between the plate and the substrate disposed to face the plate at the disposing step is provided. Figures 1-2 and paragraph [0031].

Claim 12: a processing solution generating step for producing the processing solution by mixing plural chemicals is provided. Figures 1-2 and paragraph [0019].

Claim 14: a heating step for heating the substrate supported at the supporting step prior to the coating forming step is provided. Figures 1-2 and paragraph [0020] (the heating of substrate 6 using passage 32 can occur during plating and pre-treatment, for example).

5. Claims 1, 2, 4-6, 9, 10-12 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 1 126 512 (hereinafter '512).

'512 teaches an electroless plating apparatus. Figures 10, 12 and paragraph [0064]. A substrate supporting unit for supporting a substrate is provided. Paragraph [0064] (turntable 72) and figures 10, 12. A plate disposed to face the substrate supported by the substrate supporting unit is provided. Figures 10, 12 and paragraphs [0065] (see the surface of cell 92). A processing solution discharge unit, formed on a surface of the plate which faces the substrate for discharging a processing solution is provided. Figures 10, 12 and paragraph [0065] (opening in the surface of cell 92). A gap

adjusting unit is provided for changing a gap between the plate and the substrate. See for example, figures 10, 12 and paragraph [0069] (movement of turntable 72).

Claim 2: heating units are provided that would provide for heating of the plate. Figures 10, 12 and paragraph [0075] (the heating of the liquid in bath 75 would heat the cell 92 that it is in).

Claim 4: a solution supply unit for supplying processing solution to the plate after adjusting the temperature of the processing solution is provided. Figures 10, 12 and paragraph [0066] – [0067] and [0074] (bath 74, supply valve 79 and note hot bath 75).

Claim 5: the solution supply unit supplies the processing solution in turn, as it occurs after the step of providing the substrate on the supporting unit. See paragraphs [0066] and [0069].

Claim 6: the solution supply mechanism has a processing solution producing unit for producing a processing solution by mixing plural chemicals. Figures 10, 12 and paragraph [0066] (bath 74).

Claim 9: an operational nozzle for discharging a processing solution onto the substrate is provided. Figures 10, 11 and paragraphs [0065] – [0066] (see valve 79 and opening in cell 92).

Claim 10: an electroless plating method is also provided. Figures 10, 12 and paragraph [0069]. A supporting step for supporting a substrate is provided. Figures 10, 12 and paragraph [0069]. A disposing step for disposing a plate to face the substrate



supported at the supporting step is provided. Figure 10, 12 and paragraph [0069], [0026]. A coating forming step for forming a coating on the substrate by supplying a processing solution between the plate and the substrate disposed to face the plate at the disposing step is provided. Figures 10, 12 and paragraph [0069].

Claim 11: '512 does teach that the gap between the plate and the substrate, that is, the plating cell size, is desirably provided to be the minimum size for plating and is pressurized. Paragraph [0070]. '512 also teaches adjusting the size of the gap. Paragraph [0069]. As the minimum size is used, and since it is under pressure, the gap would inherently be thinner than the size when the processing solution is kept on the substrate by surface tension alone.

Claim 12: a processing solution generating step for producing the processing solution by mixing plural chemicals is provided. Figures 10, 12 and paragraph [0066].

Claim 14: a heating step for heating the substrate supported at the supporting step prior to the coating forming step is provided. Figures 10, 12 and paragraph [0064] and [0074] (use of heater 73).

### *Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dubin et al (US 2003/0134047).

Dubin teaches all the features of these claims, as discussed in the 35 USC 102(e) rejection using Dubin above, except the second gap adjusting unit.

Dubin does teach that a second plate is provided to face a second surface of the substrate. Figures 1-2 and paragraph [0020] (the surfaces of the chuck 3 acts as a "plate" that faces the back surface of the substrate). A liquid discharge unit formed on a surface of the second plate facing the second surface of the substrate for discharging a liquid at a controlled temperature is provided. Figures 1-2 and paragraph [0020] (passage 32 discharges water, for example, at a discharge point that can be heated to control the temperature of the substrate, thus indicating that the water is at a controlled

temperature). Passage 32 also acts as a solution supply unit for supplying the liquid to be discharged into the second plate after adjusting the temperature. Figures 1-2 and paragraph [0020].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Dubin to provide a gap adjusting unit to adjust the gap between the second plate and the substrate, because Dubin provides that water can be provided from passage 32 to discharge on the back surface of the substrate to heat or cool, and therefore a gap would need to be present between the surface of the chuck 3 facing the substrate and the substrate so that the water could flow to surface area of the substrate to perform the heating/cooling. One of ordinary skill in the art would understand the amount and temperature of the water would affect the amount of heating and cooling provided, and therefore, would perform routine experimentation to optimize the size of the gap between the chuck plate and the substrate to provide desirable heating/cooling for the specific substrate used, as "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). Moreover, it would have been obvious to one of ordinary skill in the art to make the gap size adjustable so that one of ordinary skill in the art would be able to use the process for various substrates, and furthermore, as discussed in *In re Stevens*, 212 F.2d 197, 101 USPQ 284 (CCPA 1954), the court held that adjustability, where needed, is not a patentable advance.

9. Claims 3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dubin as applied to claims 1, 2, 4-6, 9, 10, 12 and 14 above, and further in view of Thomas (US 6017585).

Dubin teaches all the features of these claims except the inclination adjusting unit (claim 3) and the inclining step (claim 13). Dubin does teach coating a wafer rotating on a chuck with an above mounted applicator. Figures 1-2 and paragraph [0031].

Thomas teaches a wafer coating system for coating a wafer rotating on a chuck (carrier mechanism) with an above mounted applicator. Column 4, lines 30-55 and figures 1 and 4. Thomas teaches that when the wafer is mounted on the chuck, the substrate can be tilted somewhat, so the tilt or pitch of the deposition orifice of the applicator is adjusted relative to the substrate surface so that the deposition surface and the orifices are substantially parallel. Column 7, lines 25-50.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Dubin to provide an inclining step for inclining the supported substrate prior to coating as suggested by Thomas, with an expectation of desirable coating results, because Dubin teaches coating a wafer rotating on a chuck with an above mounted applicator, and Thomas teaches that providing a substrate that is tilted or inclined when mounted on a chuck is well known. It further would have been obvious to modify Dubin to provide an inclination adjusting unit for changing inclinations of the substrate and the plate as a unit as suggested by Thomas, in order to

provide desirable coating conditions, because Dubin provides the applicator/plate above the substrate and chuck, and Thomas teaches that for optimum coating the system is provided with an inclination adjusting unit so that the inclinations of the substrate and applicator are identical as a unit, and thus would be changed as a unit.

10. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dubin as applied to claims 1, 2, 4-6, 9, 10, 12 and 14 above, and further in view of EP 1 126 512 (hereinafter '512).

Dubin teaches all the features of these claims except the gap adjusting step to the claimed thinness. Dubin does teach that the process chamber can be pressurized. Paragraph [0017]. Dubin also teaches coating a wafer rotating on a chuck with an above mounted applicator. Figures 1-2 and paragraph [0031].

'512 teaches an electroless plating process where a wafer is provided on a turntable (chuck) for plating and an above mounted applicator is provided on a plate so that coating is provided into the gap area. Figures 10 and 12 and paragraphs [0064]--[0076]. The gap between the plate and the substrate, that is, the plating cell size, is desirably provided to be the minimum size for plating and is pressurized. Paragraph [0070].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Dubin that when adjusting the gap between the plate and the substrate to provide the minimum size possible for successful pressurized

plating of the specific substrate as suggested by '512, because Dubin provides a gap adjusting step between the applicator/plate and substrate, and '512 teaches that when providing the gap between the plate and the substrate for electroless plating to provide the minimum size possible for successful pressurized plating of the specific substrate. Thus, one of ordinary skill in the art would be suggested to perform routine experimentation to determine the minimum gap size for successful pressurized plating, as "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955), and since it is under pressure, it would be thinner than the size when the processing solution is kept on the substrate by surface tension alone.

11. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over '512 as applied to claims 1, 2, 4-6, 9, 10-12 and 14 above, and further in view of Dubin (US 2003/0134047).

'512 teaches all the features of these claims except for the second plate with controlled temperature discharge. '512 does teach heating the back of the substrate using a heater on the turntable support. Paragraph [0064].

However, Dubin teaches an electroless plating apparatus. Figures 1-2 and paragraph [0001]. A substrate supporting unit for supporting a substrate is provided. Paragraph [0014] (chunk 3) and figures 1-2. A plate disposed to face the substrate

supported by the substrate supporting unit is provided. Figures 1-2 and paragraphs [0015] (cover 7 would be a "plate" as shown) and [0018] (sprayer 16 in the form of a "showerhead" would also have a "plate" form). A processing solution discharge unit, formed on a surface of the plate which faces the substrate for discharging a processing solution is provided. Figures 1-2 and paragraphs [0015] and [0018] (either the sprayer 16 is formed on the surface of the cover 7 - see the attachment in the figures, or the discharge holes of the "showerhead" of 16 would also act as the discharge unit). A gap adjusting unit is provided for changing a gap between the plate and the substrate. See for example, figure 2 and paragraph [0023] (note the adjustment of the position of cover 7, and the resulting movement of the attached sprayer 16 as shown in the figures).

Dubin does teach that a second plate is provided to face a second surface of the substrate. Figures 1-2 and paragraph [0020] (the surfaces of the chuck 3 acts as a "plate" that faces the back surface of the substrate). A liquid discharge unit formed on a surface of the second plate facing the second surface of the substrate for discharging a liquid at a controlled temperature is provided. Figures 1-2 and paragraph [0020] (passage 32 discharges water, for example, at a discharge point that can be heated to control the temperature of the substrate, thus indicating that the water is at a controlled temperature). Passage 32 also acts as a solution supply unit for supplying the liquid to be discharged into the second plate after adjusting the temperature. Figures 1-2 and paragraph [0020].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify '512 to use a turntable that provides a liquid discharge between a plate of the turntable and the substrate to heat the substrate using a controlled temperature liquid as suggested by Dubin with an expectation of desirable heating as '512 teaches to heat the substrate using a heater on the turntable and Dubin teaches that desirable method of heating using a turntable support is to provide a liquid discharge between a plate of the turntable and the substrate to heat the substrate using a controlled temperature liquid. It further would have been obvious to modify '512 in view of Dubin to provide a gap adjusting unit to adjust the gap between the second plate and the substrate, because Dubin provides that water can be provided from passage 32 to discharge on the back surface of the substrate to heat or cool, and therefore a gap would need to be present between the surface of the chuck 3 facing the substrate and the substrate so that the water could flow to surface area of the substrate to perform the heating/cooling. One of ordinary skill in the art would understand the amount and temperature of the water would affect the amount of heating and cooling provided, and therefore, would perform routine experimentation to optimize the size of the gap between the chuck plate and the substrate to provide desirable heating/cooling for the specific substrate used, as "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). Moreover, it would have been obvious to one of ordinary skill in the art to make



the gap size adjustable so that one of ordinary skill in the art would be able to use the process for various substrates, and furthermore, as discussed in *In re Stevens*, 212 F.2d 197, 101 USPQ 284 (CCPA 1954), the court held that adjustability, where needed, is not a patentable advance.

12. Claims 3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over '512 as applied to claims 1, 2, 4-6, 9, 10-12 and 14 above, and further in view of Thomas (US 6017585).

'512 teaches all the features of these claims except the inclination adjusting unit (claim 3) and the inclining step (claim 13). '512 does teach coating a wafer rotating on a chuck with an above mounted applicator. Figures 10,12 and paragraph [0064] – [0076].

Thomas teaches a wafer coating system for coating a wafer rotating on a chuck (carrier mechanism) with an above mounted applicator. Column 4, lines 30-55 and figures 1 and 4. Thomas teaches that when the wafer is mounted on the chuck, the substrate can be tilted somewhat, so the tilt or pitch of the deposition orifice of the applicator is adjusted relative to the substrate surface so that the deposition surface and the orifices are substantially parallel. Column 7, lines 25-50.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify '512 to provide an inclining step for inclining the supported substrate prior to coating as suggested by Thomas, with an expectation of desirable coating results, because '512 teaches coating a wafer rotating on a chuck with

an above mounted applicator, and Thomas teaches that providing a substrate that is tilted or inclined when mounted on a chuck is well known. It further would have been obvious to modify '512 to provide an inclination adjusting unit for changing inclinations of the substrate and the plate as a unit as suggested by Thomas, in order to provide desirable coating conditions, because '512 provides the applicator/plate above the substrate and chuck, and Thomas teaches that for optimum coating the system is provided with an inclination adjusting unit so that the inclinations of the substrate and applicator are identical as a unit, and thus would be changed as a unit.


### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (571) 272-1413. The examiner can normally be reached on M-F(6:00-3:30) with the First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and for After Final communications.

Other inquiries can be directed to the Tech Center 1700 telephone number at (571) 272-1700.

Furthermore, information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
KATHERINE BAREFORD  
PRIMARY EXAMINER